

## Comments on plumage variations in the genus *Euplectes* Swainson

by BRYAN L. SAGE

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As plumage variations in wild populations of the various species of Bishops, *Euplectes* spp., are apparently uncommon, it seems worth placing on record details of aberrations noted in three of this genus. A number of the Bishops are kept in captivity and no doubt plumage variations have been noted under these conditions, but I have not searched the avicultural literature. However, Rollin (1962) has described a case of non-hereditary melanism in a captive Orange Bishop, *Euplectes orix franciscana* (Isert).

(i) RED BISHOP, *Euplectes o. orix* (L.).

Transvaal Museum No. 6673. Collected at Matabiele, East Griqualand, Cape Province, South Africa, on 26th January 1911, by L. J. Davies.

I am indebted to Mr. Richard Brooke for details of this specimen which I have not been able to study. The bird is a female with the breast and abdomen off-white, the central dark streaks on the breast feathers have nearly disappeared; the normal brown of the head, back, wings and tail is almost entirely replaced by dull white, and what brown remains is paler than usual.

It would seem that the abnormal plumage coloration of this specimen is a result of the almost complete absence of the brown phaeomelanin pigment.

(ii) RED-CROWNED BISHOP, *Euplectes hordeacea* (L.)

Collected about 25 miles north of Fort Jameson, Northern Rhodesia, on 3rd March, 1937.

Details of this specimen have been supplied by Dr. J. M. Winterbottom; it was at one time in the collection of the British Museum (Natural History) but cannot now be traced. The specimen was a male in which the normal black of the forehead, wings and tail was replaced by white, whilst the red areas of the plumage were unaffected.

Here we have an apparently straightforward case of complete absence of the black eumelanin and retention of the red carotenoid pigment. It is of interest to note that Mackworth-Praed and Grant (1955) state in respect of the male—"Occasionally albinistic or with general colour very pale and wings and tail white; bill and eye remain black".

(iii) YELLOW BISHOP, *Euplectes capensis* (L.)

Rhodes-Livingstone Museum No. 13258. Collected at Katombara, Northern Rhodesia, on 17th January 1964, by Anthony Balcomb.

This most interesting specimen is a male in which the carpal area, lower back and rump, are bright lemon yellow as in normal individuals. In normal males the remainder of the plumage is clear jet black, but the flight feathers are browner with lighter edgings. In the aberrant specimen the primaries and secondaries are pale brownish-grey; the lower breast, belly, mantle, nape and crown, are silvery-grey, each feather being tipped with black; upper breast, forehead and ear-coverts blackish; tail dark greyish-black. The forehead, ear-coverts, mantle and upper breast are tinged with olive green. The soft parts are as in normal specimens.

In this specimen we have another instance of a carotenoid pigment,

in this case yellow, remaining unaffected whilst the melanin has been modified. The interesting point is the existence of the olive green wash which is not evident in the normal male plumage. A single feather from the upper breast appeared silvery-grey with a black tip, and a yellowish subterminal area. A microscopical examination of this feather was made for me by Dr. L. Auber upon whose report the following details are based.

The barb contains what appears to be a yellow carotenoid pigment of a diffused appearance, with a small amount of scattered melanized granules. The basal portion of the individual barbule contains this yellow pigment again associated with scattered black granules. The distribution of the black granules increases in density in the terminal portion of the barbule to such an extent that the terminal two-thirds appear deep black. The silvery-grey colour of the basal portion is due to practically the same distribution of black granules, but the yellow pigment is absent. In the anterior portion of the feather the melanized granules increase in density in both barbs and barbules, thus giving rise to the black appearance. The optical impression of olive green is, therefore, due to an "apposition" effect of minute areas of yellowish (barbs and rows of barbule bases) and the black of the remaining parts of the barbules.

The above details indicate that the aberrant feather differs from the normal black feather in the restriction of the quantity of melanized granules. It seems probable that the normal black feathers contain the yellow pigment, but that it is usually masked by the close packing of the melanized granules. Harrison (1963) has described a somewhat similar case in a male Golden-backed Weaver, *Ploceus jacksoni* Shelley, which is almost entirely yellowish, deepest on the head, wings and tail. The normal male of this species has the head black, wings and tail mainly black and greenish, and the mantle chestnut.

The production of olive shades by the apposition of, roughly, yellow pigmented barbs and black pigmented rows of barbules occurs in various groups of birds. A typical example is the Zosteropidae (see Moreau, 1957) in which yellow carotenoid and three types of melanin pigment are present. In the terminally exposed portion of each contour feather the barb and/or individual barbules have part of the length yellow and the remainder melanic. Superimposed on each other in the plumage they give, by a "lattice" effect, a visual appearance of greenish.

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## Concealed yellow pigment in the breeding plumage of some weavers

by C. J. O. HARRISON

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The males of a large number of weaver species (Ploceidae) in Africa have a breeding plumage patterned in yellow and black. In *Ploceus melanogaster* (Fig. n) the male is almost entirely black, the head only being deep yellow with a black streak through the eye, and a black throat separated from the similarly coloured under side by a narrow golden band. A male of this species showing an interesting example of partial non-melanism was collected by the Rev. W. Serle in British Cameroons on 29th March, 1948. This bird has lost the black throat patch and has a clear yellow throat with a narrow black border in places. The belly, under tail-coverts and posterior flanks are entirely light yellow: there are a few yellow feathers on the rump. Most of the primaries on the right wing and some on the left wing are yellow and pale buff, as are some of the tail feathers, the presence of buff suggesting that some of the phaeomelanin has been retained in places. Some of the right wing-coverts are white with a yellow border, and a few have a black border, a narrow yellow zone inside that, and a white centre. Most of the feathers of wings, mantle and breast show a reduction of melanin towards the base, and where melanin is reduced on mantle and breast there is evidence of yellow pigment.

A specimen of *Euplectes capensis* described above by Sage appears to be a similar example of reduction of melanin in parts which are normally black, revealing the presence of yellow pigment.

Examples of total loss of melanin in the Ploceidae appear to be rare. A non-melanic specimen of *Ploceus jacksoni* was collected by C. W. Chorley in Uganda on 12th May, 1928 and is in the collection of the British Museum (Natural History) (Reg. No. 1929. 1. 7. 43). This is a male and is entirely yellow. The colour is very intense on wings and tail, less so on the breast and sides of the head, while the remainder of the plumage, including the mantle, is very pale. Since males in breeding plumage have an intensely golden mantle it is suspected that this specimen is in the non-breeding plumage in which the mantle pigment would be mainly melanin, giving a dark-streaked olive green colour in the normal bird. This is presumably the specimen which gave rise to the reference to xanthochroic examples by Mackworth-Praed and Grant (1955). It has been suggested that the terms Xanthic and Xanthochroic are not valid for plumages of this type, which should more correctly be called non-melanic (Harrison 1963).

The evidence of these specimens suggests that in this family there is a tendency for yellow pigment to be present not only in those parts of the plumage where it may have some signal value in epigamic displays, but also where it is masked by heavily melanized plumage. It is not the case in all black and yellow pigmented species, for in non-melanic forms of the